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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,592	03/31/2004	Brandon C. Barnett	P15984	8433
25694 7590 04/04/2007 INTEL CORPORATION C/O INTELLEVATE, LLC P.O. BOX 52050 MINNEAPOLIS, MN 55402			EXAMINER PHAN, HANH	
			ART UNIT	PAPER NUMBER
			2613	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/04/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/816,592	<b>Applicant(s)</b> BARNETT ET AL.	
	<b>Examiner</b> Hanh Phan	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-11, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoneyama (US Patent No. 6,178,022).

Regarding claims 1 and 19, referring to Figures 4-6, Yoneyama teaches an apparatus (i.e., an optical transmitter, Fig. 4) comprising:

a pulse laser (i.e., a short-pulse light source 12, Fig. 4) to generate a pulse train (i.e., Figs. 4 and 5, col. 5, lines 65-67 and col. 6, lines 1-8 and lines 45-48); and

a modulator (i.e., optical modulator 13, Fig. 4) to receive the pulse train and a data signal, the modulator (i.e., optical modulator 13, Fig. 4) to encode the data signal onto the pulse train by selectively passing pulses (i.e., Figs. 4 and 5, col. 5, lines 65-67, col. 6, lines 1-67 and col. 7, lines 1-12).

Regarding claims 2 and 20, Yoneyama further teaches the pulse laser is mode-locked to a particular pulse frequency equal to a data rate of the data signal (i.e., Figs. 4 and 5, col. 5, lines 65-67 and col. 6, lines 1-60).

Regarding claim 3, Yoneyama further teaches the pulse laser is mode-locked to a particular duty ratio of light-to-no-light per pulse cycle (i.e., Figs. 4 and 5, col. 5, lines 65-67 and col. 6, lines 1-60).

Regarding claim 5, Yoneyama further teaches the modulator comprises one of a Mach-zehnder interferometer or a variable optical modulator (i.e., col. 6, lines 45-60).

Regarding claim 6, Yoneyama teaches further comprising: a light conductor to direct the pulse train from the pulse laser to the modulator (i.e., Figures 4 and 6).

Regarding claim 7, Yoneyama further teaches the light conductor comprises at least one of a waveguide or an optical fiber (i.e., Figures 4 and 6).

Regarding claim 8, Yoneyama further teaches wherein: the modulator comprises one of a plurality of modulators (i.e., optical modulators 13, Fig. 6), each of the plurality of modulators (i.e., an optical modulator 13, Fig. 6) to separately receive the pulse train (i.e., short pulse light source 12, Fig. 6) and a separate data signal (i.e., data signal 1, Fig. 6), and to encode the separate data signal onto the pulse train by selectively passing pulses.

Regarding claim 9, Yoneyama teaches further comprising: a waveguide splitter (i.e., optical coupler 15, Fig. 6) to direct the pulse train from the pulse laser (i.e., short pulse light source 12, Fig. 6) to the plurality of modulators (i.e., an optical modulators 13, Fig. 6).

Regarding claim 10, Yoneyama further teaches wherein: the pulse laser comprises one of a plurality of pulse lasers (i.e., short pulse light sources 12, Fig. 4), each of the plurality of pulse lasers (i.e., a short pulse light source 12, Fig. 4) to

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generate a separate pulse train; and the modulator comprises one of a plurality of modulators (i.e., an optical modulators 13, Fig. 4), each of the plurality of modulators to receive one of the separate pulse trains and a separate data signal (i.e., a data signal DATA1, Fig. 4), and to encode the separate data signal onto the respective separate pulse train by selectively passing pulses.

Regarding claim 11, Yoneyama teaches further comprising: a photodetector (i.e., optical pulse signal receiving circuit 5, Figs. 7-9) to receive the modulated pulse train from the modulator and convert the modulated pulse train to a modulated electrical current; and a receiver to convert the modulated electrical current back into the data signal (i.e., Figs. 7-9, col. 7, lines 14-67, col. 8, lines 1-67 and col. 9, lines 1-16).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneyama (US Patent No. 6,178,022).

Regarding claim 4, Yoneyama differs from claim 4 in that he does not specifically teach the duty ratio comprises 1 to 100. However, it would have been obvious to obtain the duty ratio comprises 1 to 100 in order to increasing the amplitude of the pulse, since it has been held that where the general conditions of a claim are disclosed in the prior

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art, discovering the optimum or workable involves only routine skill in the art. *In re A11er*, 105 USPQ 233.

5. Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneyama (US Patent No. 6,178,022) in view of Givehchi (Pub. No.: US 2003/0002118) and further in view of Harpin et al (Pub. No: US 2001/0050793).

Regarding claims 12-14, Yoneyama teaches all the aspects of the claimed invention as set forth in the rejection to claim 1 above except fails to specifically teach the modulator comprises a first chip and the photodetector and the receiver comprise a second chip. However, Givehchi teaches a modulator comprises a chip (i.e., a modulator 106 comprises a chip, Fig. 1, page2, paragraphs [0017]-[0018]) and Harpin et al teaches a photodetector and a receiver comprise a chip (i.e., optical receiver 2 is fabricated on a silicon chip, Fig. 1, page 2, paragraph [0020]). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the modulator comprises a first chip and the photodetector and the receiver comprise a second chip as taught by Givehchi and Harpin et al in the system of Yoneyama. One of ordinary skill in the art would have been motivated to do this since allowing reducing the size, weight and cost of the whole system.

Regarding claim 15, the combination of Yoneyama, Givehchi and Harpin et al teaches further comprising: a light conductor to direct the modulated pulse train from the first chip to the second chip (i.e., Figs. 4 and 6 of Yoneyama, Fig. 1 of Givehchi and Fig. 1 of Harpin et al).

Regarding claim 16, the combination of Yoneyama, Givehchi and Harpin et al teaches the first chip comprises a plurality of modulators, each of the plurality of modulators to separately receive the pulse train and a separate data signal, and to encode the separate data signal onto the pulse train by selectively passing pulses (i.e., Figs. 4 and 6 of Yoneyama, Fig. 1 of Givehchi and Fig. 1 of Harpin et al).

Regarding claim 17, Yoneyama teaches further comprising: a waveguide splitter (i.e., optical coupler 15, Fig. 6) to direct the pulse train from the pulse laser (i.e., short pulse light source 12, Fig. 6) to the plurality of modulators (i.e., an optical modulators 13, Fig. 6).

Regarding claim 18, the combination of Yoneyama, Givehchi and Harpin et al teaches wherein the pulse laser is integrated into the first chip, and wherein: the pulse laser comprises one of a plurality of pulse lasers integrated into the first chip, each of the plurality of pulse lasers to generate a separate pulse train; and the first chip comprises a plurality of modulators, each of the plurality of modulators to receive one of the separate pulse trains and a separate data signal, and to encode the separate data signal onto the respective separate pulse train by selectively passing pulses (i.e., Figs. 4 and 6 of Yoneyama, Fig. 1 of Givehchi and Fig. 1 of Harpin et al).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Liu et al (US Patent No. 7,127,174) discloses optical transmission system.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**